NTEQ Student-Centered Lesson

Tim Lusk

Tech/507

Date

Instructor: Kelly Gentry

Compare and Contrast the Two Main Types of Chemical Bonds

**Grade:** 9-10

**Common Core Standards**

**Grades 9-10** ( National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010)

**CCSS.ELA-Literacy**

* RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
* [RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics
* [RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/) Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

**Description:**

Students will utilize technology to look up, define, and then compare and contrast chemical bonds. First, the web will be used to define the terms, and then using a graphic organizer to help develop a visual when comparing and contrasting the two bonds. Then students will share what they learned on a social media Website such as a wiki.

**Objectives:**

Students will:

* Define ionic and covalent bonds using the internet.
* Analyze the descriptions and understand the similarities and differences.
* Design a graphic organizer using a web-based application or similar program.
* Identify a simulation or game that relates to bonds; add this to graphic organizer or wiki.
* Collaborate with others by adding all to one or two pages in wiki.

**Materials:**

* Access to Internet for students and teacher
* Projector for classroom
* Appropriate software if not web-based
* Textbook

**Lesson:**

Ask students to read the section on ionic and covalent bonds. Then ask them what it means to say, “opposites attract.” To reinforce this idea, use a number of magnets as a model. Explain that bonds involve the sharing of electrons. (We are assuming that students understand about the structure of the atom. If questions exist, then review this information.)

Tell the class that today we are going to compare and contrast. Ask students, "What is the definition of compare?" Then ask, "What is opposite of compare?"If questions arise, have students work in pairs to find the meaning in a dictionary or textbook. Once they have found the meaning of these words, have a volunteer explain while using an example.

Now tell students we are going to be using a graphic organizer. Ask the group if they have ever used a picture when needing to organize their thoughts. If they need help with this, a graphic can be shown to clarify this information. Tell students that graphic organizers are used to help organize ideas clearly.

On the classroom projector, display “creately.com” Web site. Tell students they will be using this graphic organizer to compare and contrast ionic and covalent bonds. On this site, an instructional video exists that might be helpful, although the students could study this on their own time.

Ask students what a Venn diagrams looks like and how is it used? Show an example if students have questions or show some uncertainty and cannot describe diagram. Also point out that the Venn diagrams do not have to be the only effective organizer for C&C, and a variety of templates are available for use when comparing and contrasting. Point this out when using “Creately.com”

Now, teach the class how they can make this project more personal by using pictures and color themes. Next, tell the group they also need to include a link to a simulation or video, which helps to explain how covalent and ionic bonds form.

Before leaving for the computer lab make sure students understand what to do by writing the steps on the board, have a handout for them, or have students copy. The steps they should follow are outlined below.

* Sign onto your account
* Research Ionic and Covalent Bonds
* Write down information
* Open “creately.com”
* Make a compare and contrast organizer
* Make it personal
* Add a link or website for simulation
* Save to your account
* Post to personal wiki or other social media
* Print organizer and turn in when finished
* Sign off and turn off computer when finished

**Students with additional needs:**

Pair those students who need additional assistance with one other student.

**Assessment:**

Students will be evaluated on the product they hand in and a formative assessment such as an exit ticket.

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National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *common core state standards science & technical subjects grade 9-10*. Retrieved from National Governors Association Center for Best Practices, Council of Chief State School Officers website: http://www.corestandards.org/ELA-Literacy/RST/9-10